

# Homework 5

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## 1 Problem Set 1

Consider the unsolvable system  $Ax = b$  as given below:

$$\begin{bmatrix} 1 & 0 \\ 1 & 1 \\ 1 & 3 \\ 1 & 4 \end{bmatrix} \begin{bmatrix} x_1 \\ x_2 \end{bmatrix} = \begin{bmatrix} 0 \\ 8 \\ 8 \\ 20 \end{bmatrix}$$

- 1.1 Write R Markdown script to compute  $A^T A$  and  $A^T b$**
- 1.2 Solve for  $\hat{x}$  in R using the above computed matrices**
- 1.3 What is the squared error of this solution?**
- 1.4 Find the exact solution with p instead of b**